AMENDMENTS TO THE CLAIMS

This listing of claims replaces all previous claims, and listings of claims, in the application.

1. (Currently Amended) An oil pump rotor assembly comprising:

an inner rotor having "n" external teeth ("n" is a natural number); and

an outer rotor having (n+1) internal teeth which are engageable with the external teeth,

wherein the oil pump rotor assembly is used in an oil pump which, during rotation of the inner and outer rotors, draws and discharges fluid by volume change of cells formed between the external teeth of the inner rotor and the internal teeth of the outer rotor engaging therewith,

wherein the volumes of the cells increase along a rotational direction of the inner rotor and the outer rotor,

wherein clearances defined between the external teeth and the internal teeth engaging therewith also increase along the rotational direction,

wherein when ~~a clearance~~ the clearances are defined such that: one of the clearances that corresponds to ~~, which is defined between the teeth of the inner and outer rotors that together form one of~~ the cells ~~which has~~ having the minimum volume ~~among the cells,~~ is designated as "a"~~, a clearance, which~~; another clearance that corresponds to the cell having the maximum volume is designated as "c"; and the other clearances that correspond to the cell whose volume is increasing during rotation of the inner rotor and the outer rotor and are arranged between the clearance "a" and the clearance "c" ~~is defined between the teeth of the inner and outer rotors that together form one of~~

~~the cells whose volume is increasing during rotation of the inner and outer rotors, is~~ are designated as "b", ~~and a clearance, which is defined between the teeth of the inner and outer rotors that together form one of the cells which has the maximum volume among the cells, is designated as "c",~~ the following inequalities are satisfied:

$a \leq b \leq c$, and $a < c$, and

wherein when the clearance "b" of the cell positioned ~~forward~~ backward as viewed in the direction of rotation is further designated as "b1", and the clearance "b" in the cell positioned ~~backward~~ forward as viewed in the direction of rotation is further designated as "b2", the following inequality is satisfied:

$b1 \leq b2$.

2. (Currently Amended) An oil pump rotor assembly according to claim 1,

wherein the volumes of the cells decrease along the rotational direction of the inner rotor and the outer rotor such that the clearances also decrease along the rotational direction, and

wherein when ~~a~~ the clearance that corresponds to the cell ~~, which is defined between the teeth of the inner and outer rotors that together form one of the cells~~ whose volume is decreasing during rotation of the inner and outer rotors~~,~~ is designated as "d", the following inequalities are satisfied:

$a \leq b \leq c$, $a < c$, and $a \leq d \leq c$, and

wherein when the clearance "d" in the cell positioned backward as viewed in the direction of rotation is further designated as "d1", and the clearance "d" in the cell positioned forward as viewed in the direction of rotation is further designated as "d2", the following inequality is satisfied:

$d1 \geq d2$.

3. (Currently Amended) An oil pump rotor assembly comprising:

an inner rotor having "n" external teeth ("n" is a natural number); and

an outer rotor having (n+1) internal teeth which are engageable with the external teeth,

wherein the oil pump rotor assembly is used in an oil pump which, during rotation of the inner and outer rotors, draws and discharges fluid by volume change of cells formed between the external teeth of the inner rotor and the internal teeth of the outer rotor engaging therewith,

wherein the volumes of the cells increase and decrease along a rotational direction of the inner rotor and the outer rotor, and

wherein a clearance defined between the external teeth and the internal teeth engaging therewith ~~a clearance, which is defined between the teeth of the inner and outer rotors that together form one of the cells,~~ gradually increases as the cell rotationally moves from a position at which the volume of the cell is minimized to a position at which the volume of the cell is maximized.

4. (Currently Amended) An oil pump rotor assembly according to claim 3, wherein the clearance~~, which is defined between the teeth of the inner and outer rotors that together form one of~~

~~the cells,~~ gradually decreases as the cell rotationally moves from a position at which the volume of the cell is maximized to a position at which the volume of the cell is minimized.

5. (Currently Amended) An oil pump rotor assembly according to ~~one of claims~~ Claim 1 ~~to 4~~, wherein:

~~the~~ tooth surfaces of the inner and outer rotors are respectively formed using cycloid curves which are formed by rolling respective rolling circles along respective base circles without slip; ~~.~~

each tooth profile of the inner rotor is formed such that a tip profile thereof is formed using an epicycloid curve which is formed by rolling a first circumscribed-rolling circle Ai along a base circle Di without slip, and the tooth space profile thereof is formed using a hypocycloid curve which is formed by rolling a first inscribed-rolling circle Bi along the base circle Di without slip; and

each tooth profile of the outer rotor is formed such that a tip profile thereof is formed using an epicycloid curve which is formed by rolling a second circumscribed-rolling circle Ao along a base circle Do without slip, and the tip profile thereof is formed using a hypocycloid curve which is formed by rolling a second inscribed-rolling circle Bo along the base circle Do without slip.

6. (Currently Amended) An oil pump rotor assembly according to ~~one of claims~~ Claim 1 ~~to 4~~, wherein ~~the~~ tooth surfaces of the inner rotor are formed using a trochoid envelope curve which is formed by moving a trajectory circle, whose center is positioned on a trochoid curve, along the trochoid curve, and the tooth tips of the outer rotor are formed using an arc having the same radius as that of the trajectory circle.

7. (Cancelled)

8. (Currently Amended) An oil pump rotor assembly according to ~~one of claims~~ Claim 1~~and 3~~,

wherein each ~~of the tooth profiles~~ tooth profile of the inner rotor is formed such that ~~the~~ a tip profile thereof is formed using an epicycloid curve which is formed by rolling a first circumscribed-rolling circle Di along a base circle "bi" without slip, and ~~the~~ a tooth space profile thereof is formed using a hypocycloid curve which is formed by rolling a first inscribed-rolling circle "di" along the base circle "bi" without slip, and each ~~of the tooth profiles~~ tooth profile of the outer rotor is formed such that ~~the~~ a tip profile thereof is formed using an epicycloid curve which is formed by rolling a second circumscribed-rolling circle Do along a base circle "bo" without slip, and ~~the~~ a ~~tip~~ tooth space profile thereof is formed using a hypocycloid curve which is formed by rolling a second inscribed-rolling circle "do" along the base circle "bo" without slip, and

wherein the inner rotor and the outer rotor are formed such that the following equations and inequalities are satisfied:

$\Phi bi=n\cdot(\Phi Di+\Phi di)$;

$\Phi bo=(n+1)\cdot(\Phi Do+\Phi do)$;

one of $\Phi Di+\Phi di=2e$ and $\Phi Do+\Phi do=2e$;

$\Phi Do > \Phi Di$;

$\Phi di > \Phi do$; and

$(\Phi Di+\Phi di) < (\Phi Do+\Phi do)$,

where Φbi is ~~the~~ a diameter of the base circle "bi" of the inner rotor, ΦDi is ~~the~~ a diameter of the first circumscribed-rolling circle Di, Φdi is ~~the~~ a diameter of the first inscribed-rolling circle "di", Φbo is ~~the~~ a diameter of the base circle "bo" of the outer rotor, ΦDo is ~~the~~ a diameter of the second circumscribed-rolling circle Do, Φdo is ~~the~~ a diameter of the second inscribed-rolling circle "do", and "e" is an eccentricity distance between the inner and outer rotors.

9. (New) The oil pump rotor assembly according to Claim 1, wherein the value "a" is in the following range:

$0.010\ \text{mm} \leq a \leq 0.040\ \text{mm}.$

10. (New) The oil pump rotor assembly according to Claim 9, wherein the value "c" is in the following range:

$0.040\ \text{mm} \leq c \leq 0.150\ \text{mm}.$